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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/989,527	11/21/2001	Yasuhito Oshima	019519-338	9943

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EXAMINER

GILLIAM, BARBARA LEE

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 06/03/2003

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/989,527

Applicant(s)

OSHIMA, YASUHIITO

Examiner

Barbara Gilliam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claims

1. Claims 1-12 are pending.
2. In Claim 4, the Examiner suggest inserting "group" in line 3 after "at least one" for clarification purposes.
3. In Claim 8, the repeating unit of formula (IV) represents the repeating unit of formula (III) in Claim 2. R³ in both formula (III) and (IV) is defined as a substituted or unsubstituted hydrocarbon group having 1 to 30 carbon atoms. For examination purposes, -CO-R³- of formula (IV) has been interpreted as the substituted R³ of formula (III). This interpretation is based on the specification at page 14, line 21.

Priority

4. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on November 22, 2000. It is noted, however, that applicant has not filed a certified copy of the 2000-356182 application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claims 1-3, 5-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Tamada et al.

a. In US 5,750,313, Tamada et al. teach photosensitive resin compositions essentially comprising 100 parts by weight of a modified polyvinyl alcohol comprising structural units of formulae (I), (II) and (III) (abstract). In formula (III), X represents an aliphatic, alicyclic or aromatic divalent hydrocarbon group having 1 to 20 carbon atoms or a divalent group having at least one carboxyl group in the molecule (column 3, lines 36-39). Structural unit (III) of the modified polyvinyl alcohol of Tamada et al. meets the present limitations for repeating unit (III) wherein -CO-X- meets the present limitations for a substituted R³, -COOH meet the present limitations for X, the acid group and p is 1. The carboxyl group of structural unit (III) has a pKa less than 7. The structural unit (III) of the modified polyvinyl alcohol of Tamada et al. also meets the present limitations for repeating unit (IV) wherein X meets the present limitations for R³. Structural unit (III) serves as a functional group for introducing a photopolymerizable group into the polymer (column 4, lines 15-17). In Example 1, the synthesis of a modified PVA is taught. This modified PVA is reacted with glycidyl acrylate to introduce an unsaturated bond to the modified PVA (column 9, lines 9-33). Structural unit (III) comprising the unsaturated bond introduced via glycidyl acrylate meets the present limitations for the addition polymerizable group of the modified polyvinyl alcohol, specifically of repeating unit of formula (II) where R² is the substituted hydrocarbon, B is the unsaturated group introduced by the glycidyl acrylate and n is 1. The photosensitive composition, further containing an unsaturated epoxy compound, a polymerizable unsaturated compound having an ethylenical double bond

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in the molecule and a photopolymerization initiator, provide a printing plate material having high sensitivity (abstract). The dimethyl benzyl ketal of Example 1 meets the present limitations for the photopolymerization initiator. The polymerizable unsaturated compound having an ethylenically double bond in the molecule thereof, specifically the acrylic acid of Example 1, meets the present limitations for the compound having at least one ethylenically unsaturated bond capable of undergoing addition polymerization. In Example 1, the non-image areas of the exposed photosensitive plate were removed through development (column 9, lines 50-56 and column 8, lines 53 – 61). Thus the photosensitive plate is negative working.

b. In Tamada et al., the total proportion of the structural units of formulae (II) and (III) is from 60 to 90 mol % and the carboxyl equivalent attributed to the structural unit of formula (III) is from 0.3 to 5 mol/kg. The proportion of the structural unit of formula (III) falls within the required range of 1 to 70 % mol for the acid containing structural unit. In Example 1, 100 parts of the modified PVA was reacted with five parts of glycidyl acrylate to introduce an unsaturated bond to the modified PVA (column 9, lines 9-33). Assuming all of the glycidyl acrylate is consumed, the proportion of structural unit (III) comprising the unsaturated bond falls within the required broad range of 1 to 99 % mol for the radical polymerizable group containing structural unit.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamada et al. in view of Celeste.

a. As indicated in the rejection under 35 U.S.C. 102(b), Tamada et al. teach photosensitive resin compositions essentially comprising modified polyvinyl alcohol comprising structural units of formulae (I), (II) and (III) (abstract). Structural unit (III) also serves as a functional group for introducing a photopolymerizable group into the polymer (column 4, lines 15-17). In Example 1, a modified PVA is reacted with glycidyl acrylate to introduce an unsaturated bond to the modified PVA (column 9, lines 9-33). Tamada et al. do not teach reacting the modified PVA with any other compound to introduce an unsaturated bond. However it would have been obvious to one of ordinary skill in the art to react the modified PVA with glycidyl methacrylate based on the teachings of US 3,448,089.

b. In US 3,448,089, Celeste teaches photopolymerizable polymers containing free acid or acid anhydride groups reacted with glycidyl acrylate or glycidyl methacrylate to form unsaturated esters (column 3, lines 50-54). Glycidyl acrylate and glycidyl methacrylate are taught as functional equivalents. *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). See MPEP 2144.06. Therefore it would have been obvious to one of ordinary skill in the art to react the modified PVA of Example 1 in Tamada et al. with glycidyl methacrylate to introduce an unsaturated bond based on the teachings of US

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3,448,089. The product of this reaction comprises a methacryloyl group which meets the present limitations of claim 4.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. In *Organic Chemistry, Second Edition*, by Ege, structural features of acids and how they affect their acidity is explained. According to Ege, "acidity of an acid increases when electronegative atoms are introduced into the molecule" but the "increase in acidity also depends on the distance between the substituent and the carboxyl group." See Tables 3.1, 3.2 and 3.3. pp. 94-100.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara Gilliam whose telephone number is 703-305-1330. The examiner can normally be reached on Monday through Friday, 8:00 AM - 6:00 PM.

a. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Baxter can be reached on 703-308-2303. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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b. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Barbara Gilliam

Barbara Gilliam
Examiner
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bg
June 2, 2003